

**WHAT IS CLAIMED IS:**

1 A furnace for uniformly heating an optical fiber preform in an optical fiber  
draw tower, said furnace comprising:

a main body;

5 a sub-body placed coaxially with said main body and having a diameter smaller  
than said main body; and,

an upper gas feeding section disposed over said main body, wherein said upper gas  
feeding section includes a first hollow rotary body having at least one slit in the inner  
surface thereof along the longitudinal direction of an optical fiber and at least one opening  
10 extended in the direction of the center, whereby a gas creates non-contact polarization to  
the optical fiber through said first hollow rotary body.

2. The furnace according to Claim 1, further comprising a middle gas feeding  
section between said main body and said sub-body, wherein said middle gas feeding section  
15 includes a second hollow rotary body having at least one slit in the longitudinal direction of  
the optical fiber.

3. The furnace according to Claim 1, further comprising a lower gas feeding  
section under said sub-body, wherein said lower gas feeding section includes a third hollow  
20 rotary body having at least one slit along the longitudinal direction of the optical fiber.

4. The furnace according to Claim 1, wherein said slit is linearly extended

about the longitudinal direction of the optical fiber.

5. The furnace according to Claim 2, wherein said slit is linearly extended about the longitudinal direction of the optical fiber.

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6. The furnace according to Claim 3, wherein said slit is linearly extended about the longitudinal direction of the optical fiber.

7. The furnace according to Claim 1, wherein said slit is inclined at an angle about the longitudinal direction of the optical fiber.

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8. The furnace according to Claim 2, wherein said slit is inclined at an angle about the longitudinal direction of the optical fiber.

9. The furnace according to Claim 3, wherein said slit is inclined at an angle about the longitudinal direction of the optical fiber.

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10. The furnace according to Claim 1, wherein said slit is spirally provided about the longitudinal direction of the optical fiber.

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11. The furnace according to Claim 2, wherein said slit is spirally provided about the longitudinal direction of the optical fiber.

12. The furnace according to Claim 3, wherein said slit is spirally provided about the longitudinal direction of the optical fiber.

13. An apparatus for cooling an optical fiber drawn from an optical fiber preform in drawing systems mounted to an optical fiber draw tower, said apparatus comprising:

a main body extended in length; and

an upper gas feeding section over said main body, wherein said upper gas feeding section includes a first hollow rotary body having at least one slit in the inner surface thereof along the longitudinal direction of the optical fiber and at least one opening extended in the direction of the center, whereby a gas creates non-contact polarization to the optical fiber by said first hollow rotary body.

14. The apparatus according to Claim 13, wherein said slit is linearly extended about the longitudinal direction of the optical fiber.

15. The apparatus according to Claim 13, wherein said slit is inclined at an angle about the longitudinal direction of the optical fiber.

16. The apparatus according to Claim 13, wherein said slit is spirally provided about the longitudinal direction of the optical fiber.